

What is Claimed is:

- 1 1. A fusion protein comprising:
 - 2 a) a polypeptide comprising a reporter amino acid sequence;
 - 3 b) a second polypeptide fused to said reporter amino acid sequence;
 - 4 and
 - 5 c) a leader sequence fused to a terminus of said fusion protein.
- 1 2. The fusion protein of claim 1, wherein said polypeptide is a somatostatin
2 receptor polypeptide.
- 1 3. The fusion protein of claim 1, wherein said polypeptide is a somatostatin type 2
2 receptor polypeptide.
- 1 4. The fusion protein of claim 1, wherein said polypeptide is a mutant human
2 somatostatin receptor in which all or part of the cytoplasmic tail has been deleted.
- 1 5. The fusion protein of claim 4, wherein said polypeptide is a mutant human
2 somatostatin receptor in which the portion of the cytoplasmic tail C-terminal to amino
3 acid 314 has been deleted.
- 1 6. The fusion protein of claim 1, wherein said second polypeptide is a protein
2 fusion tag.
- 1 7. The fusion protein of claim 6, wherein said second polypeptide is hemagglutinin
2 A.
- 1 8. The polypeptide of claim 1, wherein said leader sequence is the Igκ leader
2 sequence.
- 1 9. The polypeptide of claim 3, wherein said leader sequence is the Igκ leader
2 sequence.
- 1 10. An isolated nucleic acid encoding the fusion protein of claim 1.

- 1 11. An expression vector comprising the nucleic acid of claim 10, operably linked
2 to a promoter.
- 1 12. A host cell transformed with the vector of claim 11.
- 1 13. An isolated nucleic acid encoding the fusion protein of claim 6.
- 1 14. An expression vector comprising the nucleic acid of claim 13, operably linked
2 to a promoter.
- 1 15. A host cell transformed with the vector of claim 14.
- 1 16. A method of assaying for the expression of a fusion protein comprising:
2 a) transferring a gene into a host cell with an expression vector
3 according to claim 10; and
4 b) assaying expression based upon the chemical, physical or biological
5 properties of said fusion protein.
- 1 17. The method of claim 16, wherein the gene transfer takes place *in vivo*.
- 1 18. The method of claim 16, wherein the expression of said vector is assayed by
2 contacting said host cell with a ligand that binds with specificity to a somatostatin
3 receptor, or mutated somatostatin receptor, and wherein said ligand has been detectably
4 labeled.
- 1 19. The method of claim 16, wherein the expression of said vector is assayed by
2 contacting said host cell with a ligand that binds with specificity to a somatostatin type
3 2 receptor, or mutated somatostatin type 2 receptor, and wherein said ligand has been
4 detectably labeled.
- 1 20. The method of claim 18, wherein said ligand is radioactively labeled
2 somatostatin analog.
- 3 21. The method of claim 18, wherein said ligand is radioactively labeled octreotide.

- 1 22. The method of claim 16, wherein the expression of said vector is assayed by
2 contacting said host cell with an antibody that binds with specificity to said fusion
3 protein.
- 1 23. The method of claim 20, wherein said antibody binds with specificity to
2 hemagglutinin A.
- 1 24. The method of claim 16, wherein said the expression of said vector is assayed
2 based upon the enzymatic activity of said fusion protein.
- 1 25. The method of claim 24, wherein said enzymatic activity is chloramphenicol
2 acetyl transferase activity.
- 1 26. A DNA construct comprising segments encoding:
2 a) a reporter protein; and
3 b) a second polypeptide fused to said receptor, wherein said second
4 polypeptide provides a tag for independently quantitating the
5 expression of said fusion protein.
- 1 27. The DNA construct of claim 26, wherein said reporter protein is a receptor.
- 1 28. The DNA construct of claim 26, further comprising: a leader sequence
2 fused to either said reporter or said second polypeptide.
- 1 29. The DNA construct of claim 27, wherein said receptor is a somatostatin type 2
2 receptor or the somatostatin type 2 receptor in which one or more mutations have been
3 introduced.
- 1 30. The DNA construct of any one of claim 28, wherein said second polypeptide is
2 tag.
- 1 31. A method of assaying the ability of a mutated receptor to bind a ligand
2 comprising:

- 3 a) transfecting a cell with the DNA construct of claim 28 wherein said
4 DNA construct encodes said mutated receptor or other reporter;
5 b) quantitating expression of the fusion protein by assaying a signal derived
6 from a reporter or a detectably labeled ligand to said receptor or other
7 reporter; and
8 c) normalizing the value determined in step b) by quantitating expression
9 of the fusion protein encoded by said DNA construct using said second
10 polypeptide.

1 32. The method of claim 31, wherein said mutated receptor is the somatostatin type
2 2 receptor in which one or more mutations have been introduced.

1 33. The method of claim 31, wherein the second polypeptide in said DNA construct
2 is a tag.

1 34. An imaging method comprising detecting the expression of somatostatin fusion
2 protein *in vivo*.

1 35. The method of claim 34, wherein the somatostatin fusion protein comprises a
2 carboxy terminal mutation.

1 36. The method of claim 35, wherein the carboxy terminal mutation comprises the
2 deletion of amino acids beyond amino acid 314.